SCIENCE AND TECHNOLOGY ORGANIZATION
CENTRE FOR MARITIME RESEARCH AND EXPERIMENTATION

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Autonomous, interconnected, rapid and non-lethal: featuring the future of port protection at CMRE

On 21 and 22 November 2013 the NATO Centre for Maritime Research and Experimentation, in collaboration with the Italian Navy COMFORDRAG, hosts the TALON 13 demonstration, part of the NATO Defence Against Terrorism (DAT) programme.

How could an intrusion in a maritime restricted area, either friendly or hostile, be quickly detected and identified? How could it be efficiently blocked by warning and non-lethal devices? The TALON 13 system being presented at the NATO Centre for Maritime Research and Experimentation (part of the NATO Science and Technology Organization) addresses these questions and features the new trends in the field: in the future port protection will be autonomous, interconnected and rapid, in order to minimize the vulnerability of assets and naval units, also reducing any risk of harm to benign contacts and minimising post-event litigation.

TALON 13 is an international demonstration organized in collaboration with the Italian Navy COMFORDRAG (Mine Countermeasures Maritime Command) and aimed at security professionals.
It gathers experience from the integration of multiple types of sensor networks and non-lethal warning devices, in order to implement the "rapid contact designation and warning" concept. During the demonstration a series of possible threats from small boats, underwater vehicles and swimmers/divers are simulated. TALON shows how it can automatically detect them and react to the tentative intrusion of a unit with hostile intent, by escalating its reaction capabilities from a simple audible warning to the use of non-lethal effectors. The effectors are used first to warn, then to dissuade and slow down, and finally to stop the intruder with an entanglement device, without causing him any harm. The system is based on algorithms which integrate in a software data (data fusion) coming from different underwater and land sensors, including radar, sonar and cameras. This software is able to set up autonomous reactions, while the human operator keeps the activities under control in real-time by a user-friendly internet browsing window which can be run on mobile devices and does not require a control room in order to function.

"Reducing the vulnerability of maritime assets is one of NATO's priorities", says engineer Manlio Oddone, scientist in charge of the demonstration. "TALON is remarkable because in one system it integrates the most advanced technologies for maritime surveillance and non-lethal response: it is equipped with an autonomous intelligence capable of evaluating the risk grade related to an intrusion, and sets up an effective, but non-lethal reaction, always proportional to the threat."
The demonstration is part of the CMRE work on deterrence and non-lethal capabilities in maritime security with the NATO Defence Against Terrorism (DAT) programme.

For more information visit: www.talon2013.org

About CMRE. The STO-CMRE (Science and Technology Organization – Centre for Maritime Research and Experimentation) is located in La Spezia, Italy. Formerly NATO Undersea Research Centre (NURC), the Centre focuses on research, innovation and technology in areas such as defence of maritime forces and installations against terrorism and piracy, secure networks, development of the common operational picture, the maritime component of expeditionary operations, mine countermeasures systems, non-lethal protection for ports and harbours, anti-submarine warfare, modelling and simulation, and marine mammal risk mitigation. CMRE operates two ships, NATO Research Vessel *Alliance*, a 93-meter 3,180-ton open-ocean research vessel, and Coastal Research Vessel *Leonardo*, a smaller ship designed for coastal operations. In addition to its laboratories the Centre is equipped with a fleet of autonomous underwater and surface vehicles and a world-class inventory of seagoing sensors.

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